

CLAIMS

This listing of claims will replace all prior versions of claims in the application. Claims 45, 47, 48-51, 53-55, 59, 64, 65, 70, 73-76, 84, and 85 have been amended herein.

Listing of Claims:

1-44 (Canceled).

45. (Currently amended) A system that facilitates rendering a browser-based Human-Machine Interface (HMI) on a device associated with an industrial automation environment, comprising:

means for interfacing a server component by way of a network to a set of ~~substantially zero-install~~ client devices associated with an industrial automation environment, wherein at least one device included in the set is a zero-install client device with respect to rendering a browser-based HMI;

means for establishing at least one persistent browser session over the network with at least one browser running on ~~one or more~~ the at least one device included in the set of client devices;

means for rendering a browser-based HMI formatted for display ~~[[by]]~~on the at least one browser, wherein the browser-based HMI is specifically formatted to present relevant information associated with the industrial automation environment; and

means for transmitting the browser-based HMI over the network by way of the at least one persistent browser session to the at least one browser.

46. (Previously presented) The system of claim 45, further comprising means for automatically updating the browser-based HMI in response to a change in a state of the industrial automation environment.

47. (Currently amended) The system of claim 45, further comprising means for maintaining the at least one persistent browser session in an asynchronous and continuous manner.

48. (Currently amended) A system that leverages web-based techniques to render data for an industrial automation environment, comprising:

a communication component configured to interface *via* a network to a set of client devices associated with an industrial automation environment, and that initiates *via* the network a persistent browser session with at least one browser operating on a device included in the set of client devices; and

a human-machine interface (HMI) rendering component that generates a browser-based HMI adapted for display ~~[[by]]~~on the at least one browser.

49. (Currently amended) The system of claim 48, the communication component transmits the browser-based HMI generated by the HMI rendering component to the device or to the at least one browser operating on the device over the network by way of the persistent browser session.

50. (Currently amended) The system of claim 48, the communication component initiates the persistent browser session based upon a request to initiate a browser session received from the device or from the at least one browser operating on the device.

51. (Currently amended) The system of claim 48, the device is ~~substantially~~ a zero-install client device with a standard web browser, wherein the zero-install client device ~~[[that]]~~ requires no additional proprietary or application-specific components in order to construct, define, format, or display the browser-based HMI.

52. (Previously presented) The system of claim 48, the device is at least one of a fixed HMI, a tethered portable HMI, or a wireless HMI.

53. (Currently amended). The system of claim 48, the communication component maintains the persistent browser session in a continuous fashion while the browser-based HMI is displayed by the device.

54. (Currently amended) The system of claim 48, the communication component maintains the persistent browser session in a continuous fashion independent of completion of requests or responses.

55. (Currently amended) The system of claim 48, the communication component transmits data by way of the persistent browser session to the device or to the at least one browser operating on the device in an asynchronous or unsolicited manner.

56. (Previously presented) The system of claim 48, the HMI rendering component generates multiple browser-based HMIs.

57. (Previously presented) The system of claim 56, the communication component transmits at least a portion of the multiple browser-based HMIs (1) to the at least one browser as an update to the browser-based HMI, (2) to multiple browsers operating on the device, or (3) to multiple devices included in the set of client devices.

58. (Previously presented) The system of claim 48, further comprising a customization component that receives one or more desired attribute associated with the browser-based HMI.

59. (Currently amended) The system of claim 58, the one or more desired attribute is at least one of a language in which the HMI is to be rendered, a type of machine or industrial equipment to be represented by the HMI, a type of data or information to be rendered or represented by the HMI, or received from the device or the at least one browser operating on the device by way of the persistent browser session.

60. (Previously presented) The system of claim 48, further comprising an artificial intelligence component that produces one or more inference associated with a suitable browser-based HMI.

61. (Previously presented) The system of claim 60, the HMI rendering component employs the one or more inference to tailor the browser-based HMI, wherein the one or more inference relates to at least one of (1) an attribute, character, or type associated with the device, (2) a rendering capability of the device, (3) a format for the browser-based HMI, (4) a user associated with the device, or (5) a machine or equipment included in the industrial automation environment.

62. (Previously presented) The system of claim 48, further comprising a memory remote from the device that stores a library or profile associated with the browser-based HMI.

63. (Previously presented) The system of claim 62, the library or profile includes data associated with at least one of a user history associated with the device or a machine or equipment included in the industrial automation environment, a user preference associated with the device or a machine or equipment included in the industrial automation environment, an equipment list associated with the industrial automation environment, an equipment function or capabilities list associated with the industrial automation environment, a disparate or previous browser-based HMI, or features of one or more browser-based HMI.

64. (Currently amended) The system of claim 48, further comprising an encryption component that encrypts information propagated by way of the persistent browser session or the network.

65. (Currently amended) The system of claim 48, further comprising an authentication component that verifies information propagated by way of the persistent browser session or that the network is from a trusted source.

66. (Previously presented) The system of claim 48, network is a wide area network (WAN) or a local area network (LAN).

67. (Previously presented) The system of claim 48, the network is a virtual private network (VPN) that facilitates secure transmission of data between the communication component and the set of client devices.

68. (Previously presented) The system of claim 48 is included in or operatively coupled to a web server.

69. (Previously presented) The system of claim 68, wherein the at least one browser and the web server employ at least one of hypertext transfer protocol (HTTP) or transmission control protocol/Internet protocol (TCP/IP).

70. (Currently amended) The system of claim 48, the HMI rendering component continuously receives data associated with the industrial automation environment by way of the persistent browser session.

71. (Previously presented) The system of claim 48, the HMI rendering component generates the browser-based HMI in browser format in real-time.

72. (Previously presented) The system of claim 48, the HMI rendering component automatically updates the browser-based HMI upon a change of state in the industrial automation environment.

73. (Currently amended) A method for facilitating rendering a browser-based HMI on a device associated with an industrial automation environment, comprising:

interfacing by way of a network to a set of client devices associated with an industrial automation environment;

establishing at least one persistent browser session over the network with at least one browser running on one or more devices included in the set of client devices;

rendering a browser-based HMI formatted for display by the at least one browser; and

transmitting the browser-based HMI over the network by way of the persistent browser session to the at least one browser.

74. (Currently amended) The method of claim 73, further comprising establishing the at least one persistent browser session upon receiving a request to initiate a browser session from the one or more devices.

75. (Currently amended) The method of claim 73, further comprising maintaining the at least one persistent browser session in a continuous manner.

76. (Currently amended) The method of claim 73, further comprising employing the at least one persistent browser session for providing data to the one or more devices or the at least one browser thereof in an asynchronous fashion.

77. (Previously presented) The method of claim 73, further comprising customizing the browser-based HMI based upon one or more desired attribute received from the one or more devices or the at least one browser thereof.

78. (Previously presented) The method of claim 73, further comprising storing data associated with at least one of a user history associated with the one or more device or a machine or equipment included in the industrial automation environment, a user preference associated with the one or more device or a machine or equipment included in the industrial automation environment, an equipment list associated with the industrial automation environment, an equipment function or capabilities list associated with the industrial automation environment, a disparate or previous browser-based HMI, or features of one or more browser-based HMI.

79. (Previously presented) The method of claim 78, further comprising rendering at least one library for permitting selection of components within the at least one library for customizing the browser-based HMI.

80. (Previously presented) The method of claim 73, further comprising authenticating a session request from the one or more device.

81. (Previously presented) The method of claim 80, further comprising providing a password to at least partially authenticate the session request.

82. (Previously presented) The method of claim 80, further comprising providing a personal identification number to at least partially authenticate the session request.

83. (Previously presented) The method of claim 73, further comprising employing artificial intelligence techniques to make inferences regarding at least one of (1) an attribute, character, or type associated with the one or more device, (2) a rendering capability of the one or more device, (3) a format for the browser-based HMI, (4) a user or preference associated with the one or more device, or (5) a machine or equipment included in the industrial automation environment.

84. (Currently amended) The method of claim 73, further comprising encrypting data transmissions over the at least one persistent browser session.

85. (Previously presented) The method of claim 73, further comprising implementing the at least one persistent browser session over a virtual private network (VPN).

86. (Previously presented) The method of claim 73, further comprising employing at least one hypertext transfer protocol (HTTP) to effectuate transmitting the browser-based HMI to the at least one browser in browser format.

87. (Previously presented) The method of claim 73, further comprising employing at least one transmission control protocol/Internet protocol (TCP/IP) to effectuate transmitting the browser-based HMI to the at least one browser in browser format.

88. (Previously presented) The method of claim 73, further comprising automatically updating a HMI rendered in browser format upon the occurrence of a change of a state in the industrial automation environment.